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Environmental Protection
Agency

Solid Waste and
Emergency Response
(5502G)

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Spring 1993

EPA Superfund At Work

Hazardous Waste Cleanup Efforts Nationwide

French Limited Site Profile

Site Description:
Former disposal facility located in Harris County, Texas

Site Size: 22.5 acres

Primary Contaminant:
Volatile organic compounds (VOCs), phenols, heavy metals, and polychlorinated biphenyls (PCBs)

Potential Range of Health Risks:
Central nervous system disorders, liver damage, and cancer upon direct exposure

Nearby Population Affected:
300 residents within one mile

Year Listed on NPL: 1983

EPA Region: VI

State: Texas

Congressional District: 9

Success In Brief

Innovative Technology Used to Clean Up French Limited

The U.S. Environmental Protection Agency (EPA) negotiated a major cleanup at the French Limited site, working with the Texas Water Commission (TWC) and the French Limited Task Group (FLTG). EPA's Superfund program:

- Employed an innovative technology to clean up 300,000 cubic yards of hazardous waste;
- Negotiated an agreement, known as a consent decree, in which FLTG pays for all cleanup costs and future oversight expenses;
- Ensured the planting and preservation of 23 acres of wetlands near the site; and
- Awarded the nation's 75th Superfund Technical Assistance Grant to a local group so that the community is kept informed.

Cooperation between all parties demonstrates how the Superfund program cleans up hazardous waste sites.

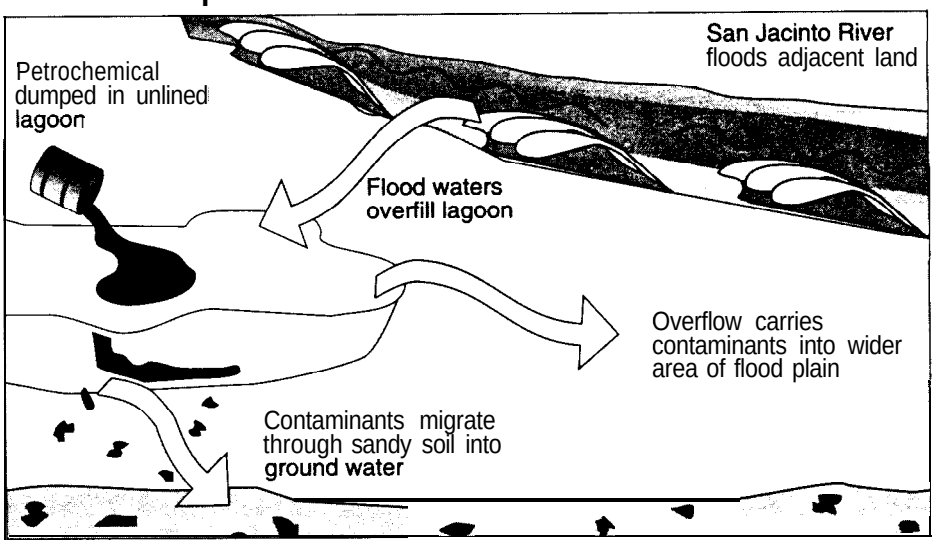
The Site Today

FLTG began cleaning up contaminated soil and water in early 1992 and work continues on schedule. Hazardous contaminants in one-half of the lagoon have been cleaned up; the other half should be completed by August 1993. FLTG expects to complete cleanup of the contaminated ground water by 1996.

An independent quality assurance team has been formed which reports monthly to EPA, TWC, and FLTG on the progress being made, consistent with the terms of the consent decree.

Status reports indicate that FLTG has consistently met all EPA deadlines.

Flood Spreads Contaminants From French Limited



A Site Snapshot

The French Limited site is a 22.5-acre hazardous waste site located two miles southwest of the town of Crosby in northeast Harris County, Texas.

This former disposal facility is located one mile east of the San Jacinto River, and lies within the river's flood plain. The surrounding area is rural; approximately 300 people live within one mile of the site. The nearest resident lives **500** feet from the main lagoon; a private well is located about 1,500 feet from the site perimeter.

During the 1950s and early 1960s, this site was used for sandmining operations. The extraction of sand created the depressions that would eventually be filled with petrochemical waste.

After sandmining operations ceased, the site was sold and used by area industries from 1966 to 1972 for disposal of chemical byproducts. The French Limited site operated under a permit issued by the State of Texas until 1973, when the permit was revoked for continuing violations, following extensive public hearings and legal proceedings.

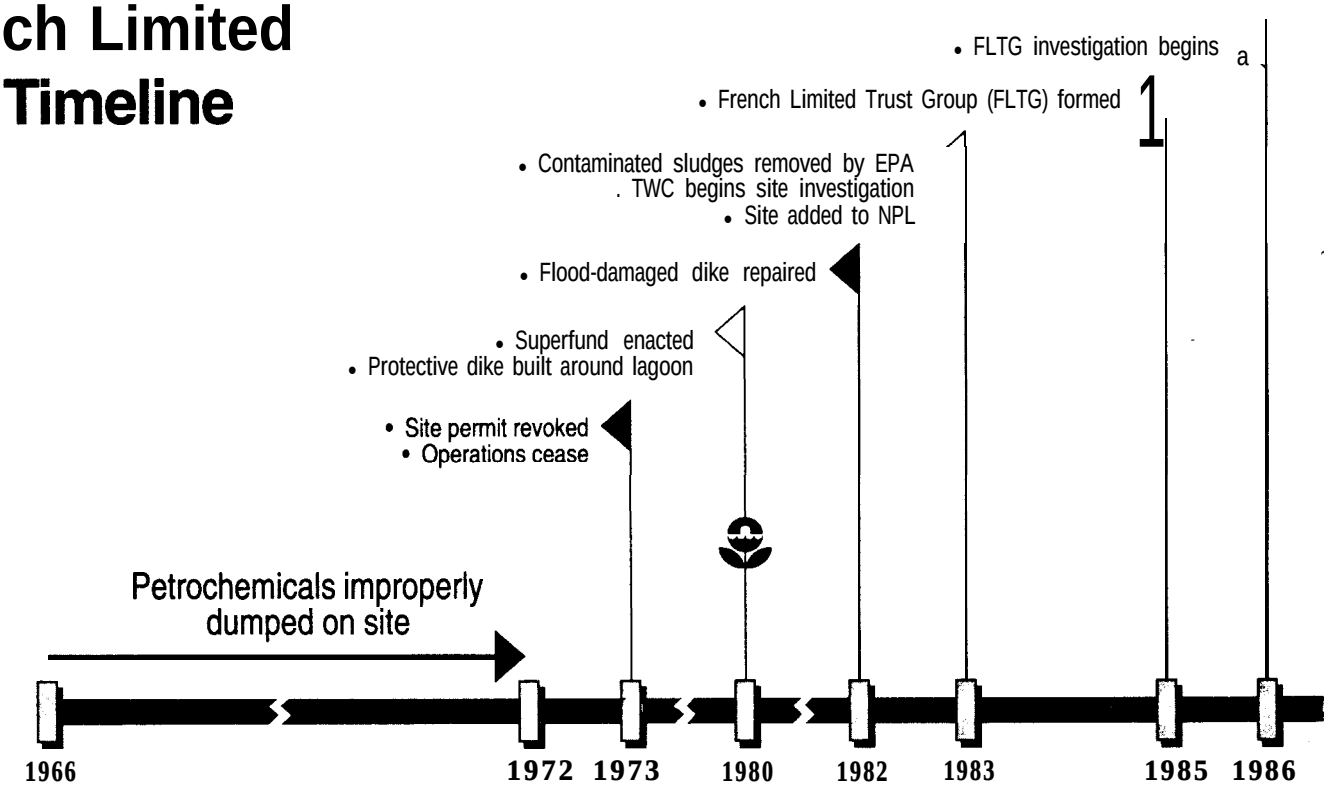
The French Limited site lies within the flood plain of the San Jacinto River

Operations ceased and all equipment was removed from the site. The owners subsequently deeded the land to the state.

The sludge, soil, air, ground water, and surface water are contaminated with volatile organic compounds (VOCs), phenols, heavy metals, and polychlorinated biphenyls (PCBs).

Direct exposure to these contaminants has been linked to central nervous system disorders, Liver damage, and cancer. An earlier health assessment for the site found that area residents have not been directly exposed to any of these chemicals.

French Limited Site Timeline



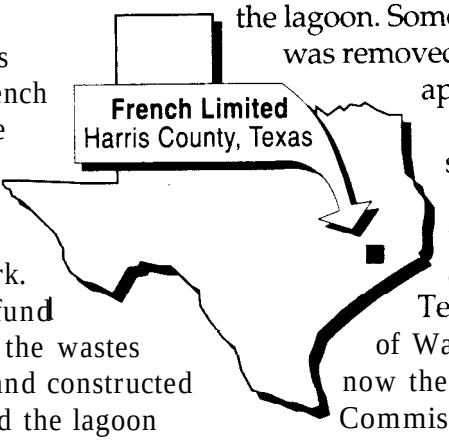
The French Limited Site: Treating Contamination In A Flood Plain

While the site operated as a disposal facility, an estimated 300,000 cubic yards of waste from area petrochemical facilities were dumped in an unlined 12-acre lagoon. Soil, surface water, and ground water have been polluted due to migration of the waste. Over the years, floods have caused spills and other containment problems, dispersing hazardous waste into the surrounding areas.

EPA Stabilizes the Site

With the enactment of Superfund in 1980, the state requested EPA's involvement with the French Limited site. The Superfund program undertakes emergency measures to stabilize hazardous waste sites like French Limited until those responsible for the site's contamination agree to conduct the work. In 1982, the Superfund team consolidated the wastes found on the site and constructed a large dike around the lagoon to prevent the spread of contamination.

Later that year, flooding caused the dike to break and the lagoon to overflow, discharging contaminated sludge. EPA repaired the dike and pumped the contaminated sludge back into the lagoon. Some of the sludge was removed to an EPA-approved landfill.



Enlisting the support of the state, EPA made federal funds available to the Texas Department of Water Resources, now the Texas Water Commission (TWC), to start investigations of the French Limited site. TWC's objective was to determine the nature and extent of contamination and to develop cleanup alternatives. Based upon the extent of environmental damage, EPA added the

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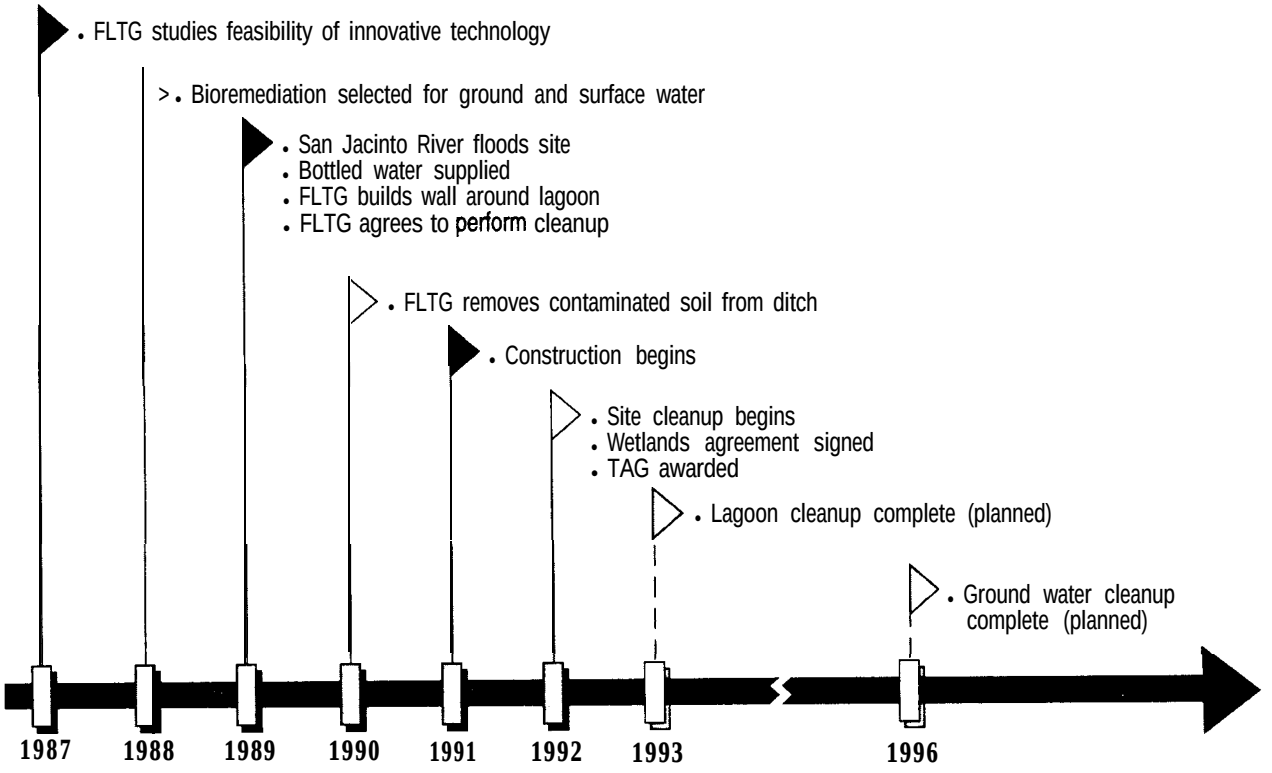

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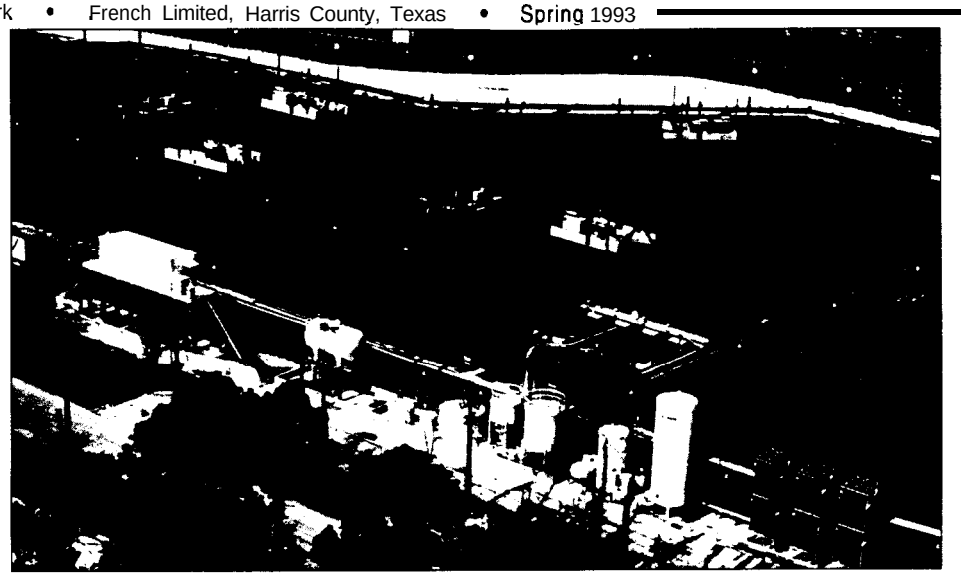
French Limited site to the National Priorities List (NPL) in October 1983. The NI'L is EPA's roster of the most serious uncontrolled or abandoned hazardous waste sites that are eligible for cleanup under the federal Superfund program.

Waste Contributors Clean Up

Having been identified as potentially liable to clean up the site, approximately 90 parties which disposed of the hazardous waste formed the French Limited Task Group (FLTG) in 1985. This group was organized to oversee the cleanup efforts at the site and to conduct negotiations with EPA and the State of Texas.

That same year, FLTG negotiated an agreement with EPA to perform field investigations of the site's contamination. TWC completed its own investigation which showed that the surface water and sludges in the lagoon and the soil beneath it were contaminated with PCBs, other hazardous organic compounds, and metals.

Based on these findings, **EPA** proposed in 1987 that on-site incineration be used to destroy the contaminants at the French Limited site. Subsequently, FLTG suggested a new technology, called bioremediation, for treating the waste (see page 5). EPA agreed to select the final cleanup remedy following the results of the bioremediation test in October 198%



Lagoon Water Treatment at the French Limited site included dredging operations to reach contaminated sludges resting on the lagoon bottom. The sludges are mixed with lagoon water to facilitate bioremediation.

Cleanup Remedy Selected

EPA evaluated the results of the test and concluded that bioremediation offered a number of advantages over incineration. Within a similar time frame, the bioremediation technique could destroy almost as much waste as incineration, at a better cost.

In March 1988, following a period for public comments, EPA selected bioremediation as the remedy for treating the hazardous material contained in the lagoon. Ground water and surface water also were slated to be biologically treated to reduce contaminants to safe levels.

French Limited was the first use of bioremediation technology at a Superfund site

This was the first application of bioremediation as an innovative technology at a Superfund site. EPA announced a back-up plan of incineration if the selected remedy proved to be unsuccessful.

EPA Responds to Flood

Shortly after bioremediation was selected as the remedy, the San Jacinto River flooded the site in May 1989. An EPA Emergency Response Team quickly collected samples, but found no spread of contamination. As a precautionary measure, EPA provided bottled drinking water to concerned area residents.

FLTG to Reimburse EPA, Pay All Future Costs

Following negotiations with EPA and the State, FLTG agreed in August 1989 to conduct the cleanup valued at $88 million. The FLTG also agreed to reimburse TWC and EPA for investigations and past cleanup actions totaling $1,275,000.

While the agreement was awaiting the approval of a federal court, FLTG took interim actions to secure the site. In the fall of 1988, FLTG spent almost $6 million erecting a wall made of 60-foot interconnected metal pieces buried 20 feet below the surface of the lagoon perimeter.

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Treating Contamination In A Flood Plain

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This interim action was to prevent any spillage from the lagoon.

FLTG also removed contaminated sediment and dirt from a nearby ditch and placed them into the lagoon for treatment with the rest of the contaminated materials.

The technical design and construction of the bioremediation facilities were completed in December 1991, and contaminant destruction began in January 1992.

Pumps are being used to mix the thick sludges from the lagoon bottom with the liquids. The bottom sludge is first broken up, then the contaminated soil beneath the sludge is dredged and mixed with the lagoon liquids. After all the material in the entire lagoon is treated, lagoon water will be passed through the on-site water treatment facility.

Clean fill will be mixed with the treated soil to pack the lagoon. The surface will then be seeded for vegetation.

Surface and ground water treatment also started in January 1992. Ground water will be treated until the concentration of VOCs has been substantially reduced. All surface water and ground water from the site will be treated to meet Texas water quality standards, and then discharged into the San Jacinto River. FLTG has 10 years to bring the contaminated shallow ground water up to federal drinking water standards.

Ground water will be closely monitored for 30 years to ensure that cleanup standards are maintained. The state, EPA, and responsible parties are conducting discussions with regard to future potential site use.

Wetlands to be Planted

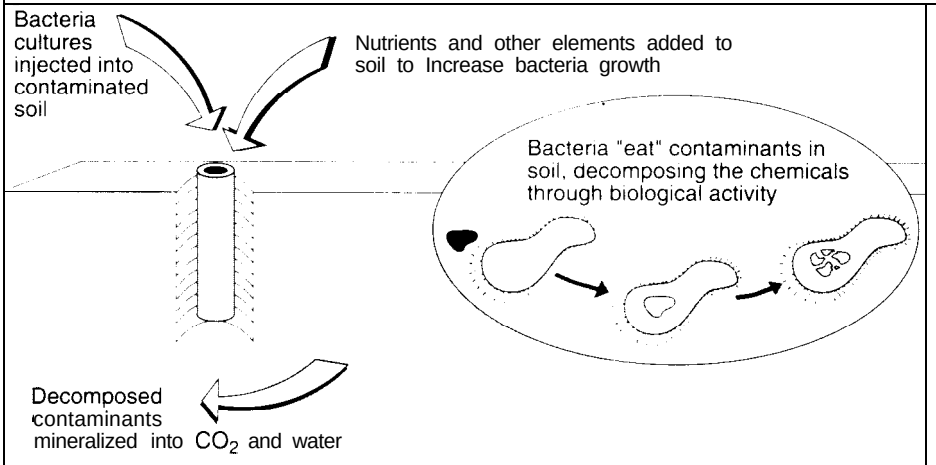
As part of the site cleanup, FLTG will plant and maintain 23 acres of new wetlands near the site to compensate for damaged area habitat. Nearbv wetlands had been fouled by spillage from the lagoons containing hazardous waste.

In 1992, the Department of Interior, the National Oceanic and Atmospheric Administration, the State of Texas, and FLTG signed a natural resource mitigation settlement. In March 1993, a natural resource mitigation consent decree was entered into Federal District Court.

The wetlands plan requires the purchase of adjacent land, planting a wide diversity of vegetation, and supplanting fish, birds, and other wildlife to compatible habitat. These actions are expected to cost FLTG approximately $10 million.

Throughout the entire cleanup process, FLTG has consistently met EPA deadlines and requirements. FLTG maintains a conscientious approach to the cleanup, as well as regular communication with members of the EPA team.

Bioremediation At French Limited Site



Bioremediation Technology

The remedy selected for the French Limited site is in-situ (in-place) bioremediation of contaminated sludge and soil in the lagoon. The process uses micro-organisms already present in the lagoon to neutralize the hazardous waste. Nutrients, similar to fertilizer, are added to the lagoon. The micro-organisms "eat" the nutrients and contaminants and break them down into non-hazardous materials. Oxygen is pumped into the lagoon to speed up the process.

Grant to Local Community Group Boosts Public Involvement

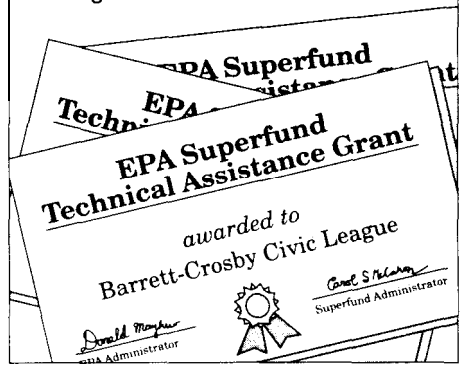
In March 1992, the Superfund program awarded a Technical Assistance Grant (TAG) to the Barrett-Crosby Civic League because of their interest in the French Limited site cleanup.

A TAG provides a community group up to $50,000 to hire independent advisors who help local citizens gain a better understanding of technical issues at Superfund sites.

With the grant, the group is currently in the process of procuring a technical advisor. Local citizens will be able to better express their concerns and offer comments on site cleanup activities.

The French Limited TAG marks the 75th grant awarded nationwide, demonstrating EPA's commitment to keeping citizens informed at Superfund sites.

The Technical Assistance Grant for the French Limited site was the 75th such grant nationwide.



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Success at French Limited

Cleanup of the French Limited site is expected to be completed by 1996. Monitoring of ground water will continue for 30 years to ensure that safety standards are maintained.

EPA Superfund staff, the French Limited Task Group (FLTG), and the State of Texas have cooperated to achieve full financing of an $88 million cleanup by the FLTG.

Their efforts included use of an innovative technology, planting wetland habitat, and community education and involvement.

For additional copies of this or other *Superfund At* Work updates, contact the National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161, telephone (703) 487-4650.

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